

Contents

Preface	1
Recent developments in penaeid broodstock and seed production technologies: improving the outlook for superior captive stocks C.L. Browdy (Bluffton, SC, USA)	3
Penaeid genetics and biotechnology J.A.H. Benzie (Townsville, Qld., Australia)	23
Aspects of penaeid biology and ecology of relevance to aquaculture: a review P.C. Rothlisberg (Cleveland, Qld., Australia)	49
Morphometric relationship of length and weight of giant tiger prawn <i>Penaeus monodon</i> according to life stage, sex and source J.H. Primavera, F.D. Parado-Esteva and J.L. Leбата (Tigbauan, Philippines)	67
Nutrient requirements of penaeid shrimps S.-Y. Shiau (Keelung, Taiwan)	77
Requirements of juvenile marine shrimp, <i>Penaeus monodon</i> (Fabricius) for lysine and arginine O.M. Millamena, M.N. Bautista-Teruel, O.S. Reyes (Tigbauan, Philippines) and A. Kanazawa (Kagoshima, Japan)	95
Contribution of natural food and supplemental feed to the gut content of <i>Penaeus monodon</i> Fabricius in a semi-intensive pond system in the Philippines U. Focken (Stuttgart, Germany), A. Groth (Bremen, Germany), R.M. Coloso (Tigbauan, Philippines) and K. Becker (Stuttgart, Germany)	105
Nutrient budgets in intensive shrimp ponds: implications for sustainability S.J. Funge-Smith and M.R.P. Briggs (Songkhla, Thailand)	117
Shrimp rearing: stocking density, growth, impact on sediment, waste output and their relationships studied through the nitrogen budget in rearing ponds J.-L.M. Martin (L'Houmeau, France), Y. Veran (Nouméa, New Caledonia), O. Guelorget (Montpellier, France) and D. Pham (Nouméa, New Caledonia)	135
Intensive culture of shrimp <i>Penaeus vannamei</i> in floating cages: zootechnical, economic and environmental aspects P. Paquette, L. Chim (Issy les Moulineaux, France), J.-L.M. Martin (L'Houmeau, France), E. Lemos, M. Stern and G. Tosta (Salvador, Brazil)	151
Effect of temperature in an intensive nursery system for <i>Penaeus paulensis</i> (Pérez Farfante, 1967) O.L. Hennig (Nagasaki, Japan) and E.R. Andreatta (Florianópolis, Brazil)	167
Osmotic concentration and tissue water of <i>Penaeus chinensis</i> juveniles reared at different salinity and temperature levels J.-C. Chen and J.-N. Lin (Keelung, Taiwan)	173
Comparative economics of shrimp farming in Asia Y.C. Shang, P. Leung and B.-H. Ling (Honolulu, HI, USA)	183
Shrimp diseases and current diagnostic methods D.V. Lightner and R.M. Redman (Tucson, AZ, USA)	201

Contents

Preface	1
Recent developments in penaeid broodstock and seed production technologies: improving the outlook for superior captive stocks C.L. Browdy (Bluffton, SC, USA)	3
Penaeid genetics and biotechnology J.A.H. Benzie (Townsville, Qld., Australia)	23
Aspects of penaeid biology and ecology of relevance to aquaculture: a review P.C. Rothlisberg (Cleveland, Qld., Australia)	49
Morphometric relationship of length and weight of giant tiger prawn <i>Penaeus monodon</i> according to life stage, sex and source J.H. Primavera, F.D. Parado-Esteva and J.L. Leбата (Tigbauan, Philippines)	67
Nutrient requirements of penaeid shrimps S.-Y. Shiau (Keelung, Taiwan)	77
Requirements of juvenile marine shrimp, <i>Penaeus monodon</i> (Fabricius) for lysine and arginine O.M. Millamena, M.N. Bautista-Teruel, O.S. Reyes (Tigbauan, Philippines) and A. Kanazawa (Kagoshima, Japan)	95
Contribution of natural food and supplemental feed to the gut content of <i>Penaeus monodon</i> Fabricius in a semi-intensive pond system in the Philippines U. Focken (Stuttgart, Germany), A. Groth (Bremen, Germany), R.M. Coloso (Tigbauan, Philippines) and K. Becker (Stuttgart, Germany)	105
Nutrient budgets in intensive shrimp ponds: implications for sustainability S.J. Funge-Smith and M.R.P. Briggs (Songkhla, Thailand)	117
Shrimp rearing: stocking density, growth, impact on sediment, waste output and their relationships studied through the nitrogen budget in rearing ponds J.-L.M. Martin (L'Houmeau, France), Y. Veran (Nouméa, New Caledonia), O. Guelorget (Montpellier, France) and D. Pham (Nouméa, New Caledonia)	135
Intensive culture of shrimp <i>Penaeus vannamei</i> in floating cages: zootechnical, economic and environmental aspects P. Paquette, L. Chim (Issy les Moulineaux, France), J.-L.M. Martin (L'Houmeau, France), E. Lemos, M. Stern and G. Tosta (Salvador, Brazil)	151
Effect of temperature in an intensive nursery system for <i>Penaeus paulensis</i> (Pérez Farfante, 1967) O.L. Hennig (Nagasaki, Japan) and E.R. Andreatta (Florianópolis, Brazil)	167
Osmotic concentration and tissue water of <i>Penaeus chinensis</i> juveniles reared at different salinity and temperature levels J.-C. Chen and J.-N. Lin (Keelung, Taiwan)	173
Comparative economics of shrimp farming in Asia Y.C. Shang, P. Leung and B.-H. Ling (Honolulu, HI, USA)	183
Shrimp diseases and current diagnostic methods D.V. Lightner and R.M. Redman (Tucson, AZ, USA)	201

Experimental infection of white spot baculovirus in some cultured and wild decapods in Taiwan Y.-C. Wang (Kaohsiung, Taiwan), C.-F. Lo (Taipei, Taiwan), P.-S. Chang (Kaohsiung, Taiwan) and G.-H. Kou (Taipei, Taiwan)	221
Detection of white spot syndrome associated baculovirus in experimentally infected wild shrimp, crab and lobsters by in situ hybridization P.-S. Chang, H.-C. Chen and Y.-C. Wang (Kaohsiung, Taiwan)	233
Detection of white-spot syndrome in cultured penaeid shrimp in Asia: Microscopic observation and polymerase chain reaction J. Kasornchandra, S. Boonyaratpalin (Songkhla, Thailand) and T. Itami (Shimonoseki, Japan)	243
Detection of white spot baculovirus (WSBV) in giant freshwater prawn, <i>Macrobrachium rosenbergii</i> , using polymerase chain reaction S.E. Peng, C.F. Lo, C.H. Ho (Taipei, Taiwan, ROC), C.F. Chang (Ping Tung, Taiwan, ROC) and G.H. Kou (Taipei, Taiwan, ROC)	253
Studies on transmission of white spot syndrome associated baculovirus (WSBV) in <i>Penaeus monodon</i> and <i>P. japonicus</i> via waterborne contact and oral ingestion H.Y. Chou, C.Y. Huang (Keelung, Taiwan), C.F. Lo and G.H. Kou (Taipei, Taiwan)	263
Enhancement of disease resistance of kuruma shrimp, <i>Penaeus japonicus</i> , after oral administration of peptidoglycan derived from <i>Bifidobacterium thermophilum</i> T. Itami (Shimonoseki, Japan), M. Asano, K. Tokushige, K. Kubono, A. Nakagawa, N. Takeno, H. Nishimura (Ube, Japan), M. Maeda (Shimonoseki, Japan), M. Kondo (Ube, Japan) and Y. Takahashi (Shimonoseki, Japan)	277
A novel tissue organized in the primary hemolymph culture of <i>Penaeus japonicus</i> Bate T. Sano (Tokyo, Japan)	289
Isolation and characterization of bacteria associated with a <i>Penaeus stylirostris</i> disease (Syndrome 93) in New Caledonia R. Costa (Païta, New Caledonia), I. Mermoud (Nouméa, New Caledonia), S. Koblavi (Paris, France), B. Morlet (Païta, New Caledonia), P. Haffner, F. Berthe (La Tremblade, France), M. Legroumellec (Taravao, French Polynesia) and P. Grimont (Paris, France)	297
Investigations of <i>Penaeus stylirostris</i> disease (Syndrome 93) in New Caledonia, exploring a viral hypothesis R. Costa (Païta, New Caledonia), I. Mermoud (Nouméa, New Caledonia), J. Mari (Tucson, AZ, USA), J.R. Bonami (Montpellier, France), K. Hasson and D.V. Lightner (Tucson, AZ, USA)	311
'Syndrome 93' in New Caledonian outdoor rearing ponds of <i>Penaeus stylirostris</i> : history and description of three major outbreaks I. Mermoud (Nouméa, New Caledonia), R. Costa, O. Ferré (Païta, New Caledonia), C. Goarant (Nouméa, New Caledonia) and P. Haffner (La Tremblade, France)	323
Mortalities of pond-cultured juvenile shrimp, <i>Penaeus monodon</i> , associated with dominance of luminescent vibrios in the rearing environment C.R. Lavilla-Pitogo, E.M. Leaño and M.G. Paner (Tigbauan, Philippines)	337
Control of luminous <i>Vibrio</i> species in penaeid aquaculture ponds D.J.W. Moriarty (Queensland, Qld., Australia)	351
Influence of vaccination on vibriosis resistance of the giant black tiger shrimp <i>Penaeus monodon</i> (Fabricius) O.S.P. Teunissen (Wageningen, Netherlands), R. Faber (Boxmeer, Netherlands), G.H.R. Booms (Wageningen, Netherlands), T. Latscha (Boxmeer, Netherlands) and J.H. Boon (Wageningen, Netherlands)	359
Bacterial flora in the hepatopancreas of pond-reared <i>Penaeus monodon</i> juveniles with luminous vibriosis E.M. Leaño, C.R. Lavilla-Pitogo and M.G. Paner (Tigbauan, Philippines)	367